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Memorandum

To: Patrick Bayou Joint Defense Group

From: David Keith, Anchor Environmental, L.L.C.

Date: September 26, 2006

Re: Addendum to the Draft Work Package 2 Work Plan

Hydrodynamic Field Data Collection and Contaminant Source Evaluation

Patrick Bayou Superfund Site Remedial Investigation, Deer Park, Texas

This memorandum proposes modifications to the *Draft Work Package 2 Work Plan, Hydrodynamic Field Data Collection and Contaminant Source Evaluation* for the Patrick Bayou Superfund Site Remedial Investigation, Deer Park, Texas submitted by Anchor Environmental, L.L.C. (Anchor) in August 2006 (Work Package 2 Work Plan). This memorandum and the attached tables and figures provide a summary of the proposed modifications that were developed based on a review of comments from the U.S. Environmental Protection Agency (USEPA), the Texas Commission on Environmental Quality (TCEQ), the site Trustees and the preliminary results of the scoping-level risk assessment for the Site using historical data.

Responses for other comments received from USEPA, TCEQ, and NOAA that do not affect the planned field activities for Work Package 2 will be addressed at a later date.

HYDRODYNAMIC DATA SAMPLE DESIGN

The data collection period for water surface elevation, velocity, dissolved oxygen, and salinity will be for a continuous 12-month period (Table 1). Text in the Draft Work Plan incorrectly stated a 9-month data collection period for this effort (EPA Comment 6 on Work Package 2).

Based on a comment received from Ms. Vickie Reat at TCEQ (Comment 4 on Work Package 2), the proposed hydrodynamic Station PB020 is being moved upstream to Station PB026. This new station location will help avoid flow interference from the downstream island and will

likely improve the quality of data collection from this site (Revised Figure 3; Table 1 and Table 8).

UPSTREAM SOURCE CHARACTERIZATION SAMPLE DESIGN

In response to a comment received from Ms. Reat on the Work Package 2 Work Plan (Comment 8), mercury and PCB Aroclors will be added to the list of analytes for upstream source characterization samples (Revised Table 2).

VERTICAL PROFILING SAMPLE DESIGN

Analytical Program

Additional parameters for analysis will be added to samples collected for vertical profiling. The purpose of these additional parameters is to characterize chemicals that have been initially identified as preliminary chemicals of potential concern (COPC) in the scoping-level ecological risk assessment (ERA) (Anchor, in preparation), and identified as contaminants of potential concern in TCEQ comments (Comment 12 on Work Package 2 by Ms. Reat, and a comment by Ms. Maureen Hatfield at TCEQ in an email to Mr. Philip Allen). The additional data will support the vertical characterization of potential contaminants at the site and subsequent tiers of the ERA process. Table 3 details sample locations/intervals for additional parameters and Table 4 includes an amended analyte list, target practical quantitation limit (PQL), and analytical methods. These amendments are summarized below:

- Additional total metals analysis for cadmium (Cd), chromium (Cr), nickel (Ni), selenium (Se), and silver (Ag)
- Additional SVOC analytes include 4-bromophenyl-phenylether, 4-chlorophenyl-phenylether, hexachloroethane, 2,6-dinitrotoluene, benzidine, bis(2-chloroisopropyl)ether, and bis(2-ethylhexyl)phthalate
- Additional pesticides including delta-BHC, gamma-chlordane, and methoxychlor
- Volatile organic compounds (VOC)

VOC will be collected in all vertical profile intervals except for the 0 – 2 cm interval. The VOC samples will be collected immediately upon core extrusion by taking small subsamples over the length of each interval and placing them in a 2-ounce glass jar and capping the jar

so there is minimal head space. It is expected that pore spaces within the sediments will be saturated so volatilization in the jar should be negligible. This collection process has been utilized with success at other Superfund sites. The alternative to the proposed method would be to use EPA Method 5035, which was developed for unsaturated soils and is difficult to implement when sampling saturated sediments.

Sample Locations

One additional sample location will be added to the vertical characterization sample design. Station location PB063 (see Revised Figure 5; Table 8) was added in response to concerns raised by Ms. Reat (Comment 1 on Work Package 2) regarding historic sample location SE-23 (USEPA 2001). Station PB063 coincides with the former SE-23 location. This location had elevated levels of PCBs (approximately 300,000 µg/kg Total PCB Aroclors) in surface sediments. Core and grab samples will be collected in the manner described in Section 4 of the Work Package 2 Work Plan. Sample intervals include 0 – 2 cm, 0 – 11 cm, 11 – 41 cm, and every subsequent 30 cm interval (Table 3). Analytes include metals, mercury, PCB Aroclors, PCB congeners, dioxin/furans, PAHs, other selected SVOC, VOC (no 0 – 2 cm sample), TOC, and grain size (Table 4).

FIELD QUALITY ASSURANCE/QUALITY CONTROL

Additional field quality assurance/quality control (QA/QC) procedures will be included in the sampling program due to the addition of VOC to the analyte list. Additional QA/QC procedures include:

- Field equipment rinsate/field blank samples for VOC analysis will be collected according to the procedures described in Table 11-1 of the QAPP (Anchor 2006). Two sets of equipment rinsate/field blanks will be collected.
- Trip blanks will be included in each shipment of VOC samples to the laboratory. Trip blanks will be handled according to the procedures described in Table 11-1 of the QAPP (Anchor 2006).

LABORATORY QA/QC

Laboratory quality control samples and measurement quality objectives have been updated in amended Tables 5 and 6 to reflect the additional analytes.

REFERENCES

Anchor Environmental, L.L.C. 2006. Draft Quality Assurance Project Plan. Remedial Investigation Work Plan. Patrick Bayou Superfund Site Remedial Investigation, Deer Park, Texas. Prepared for Patrick Bayou Joint Defense Group and USEPA.

TNRCC. 2001. Hazard Ranking System Documentation Record. Patrick Bayou Site. Deer Park, Harris County, Texas. TX0000605329. Prepared in cooperation with USEPA.

USEPA. 2006. SW-846 On-line. Method 5035.

<http://www.epa.gov/epaoswer/hazwaste/test/pdfs/5035.pdf>

REVISED TABLES AND FIGURES

Revised Table 1
Summary of Hydrodynamic and Sediment Transport Modeling Data Collection Task Study Design

Station	Field Parameters	Frequency	Collection Period
PB75	WSE	15 minutes / 1 hour**	1 month / 11 months**
	Velocity	15 minutes	1 month
	Discharge*	15 minutes	1 month
	TSS	3 hours	1 month
	Conductivity	1 hour	12 months
	Dissolved Oxygen	1 hour	12 months
	Temperature	1 hour	12 months
	Salinity*	1 hour	12 months
EF05	WSE	15 minutes / 1 hour**	1 month / 11 months**
	Velocity	15 minutes	1 month
	Discharge*	15 minutes	1 month
	TSS	3 hours	1 month
	Conductivity	1 hour	12 months
	Dissolved Oxygen	1 hour	12 months
	Temperature	1 hour	12 months
	Salinity*	1 hour	12 months
PB45	WSE	15 minutes / 1 hour**	1 month / 11 months**
	Velocity	15 minutes	1 month
	Conductivity	1 hour	12 months
	Dissolved Oxygen	1 hour	12 months
	Temperature	1 hour	12 months
	Salinity*	1 hour	12 months
PB026	WSE	15 minutes / 1 hour**	1 month / 11 months**
	Velocity	15 minutes	1 month
	Conductivity	1 hour	12 months
	Dissolved Oxygen	1 hour	12 months
	Temperature	1 hour	12 months
	Salinity*	1 hour	12 months
PB012	TSS	3 hours	1 month

* Calculated value; not measured directly by instrumentation

** Measurements will be recorded every 15 minutes for 1 month followed by measurements every hour for an additional 11 months.

Revised Table 2
Summary of Source Evaluation Sediment Sampling Study Design

Station ID ^c	Sample ID†	Depth Interval (cm) ^{c,*}	Station Coordinates ^a		Metals ^b	Mercury	PCB Aroclors ^b	PAH ^b	Pesticides ^b	TOC
			Northing	Easting						
PB101	PB101-1SS002-N	0-2	13828192.83	3201310.38	X	X	X	X	X	X
PB119	PB119-1SS002-N	0-2	13826344.50	3201533.38	X	X	X	X	X	X
PB123	PB123-1SS002-N	0-2	13826005.27	3201452.98	X	X	X	X	X	X
EF008	EF008-1SS002-N	0-2	13830923.34	3202129.31	X	X	X	X	X	X
Quality Assurance / Quality Control										
PB### ^d	PB###-#XX###-D	0-2	TBD	TBD	1 ^e	1	1	1	1	1

Notes:

- a Station Coordinates are State Plane coordinates based on North American Datum (NAD) 83 for Texas, South Central.
- b See Table 4 for complete list of analytes included in analyses.
- c Specific station and interval may be changed in the field to best represent site conditions.
- d Location to be determined in field based on site conditions. Samples to be named in accordance with Section 5.1.1
- e Represent the number of samples to be taken for each analyte class
- † Additional sample locations will be identified based on field reconnaissance survey. Up to an additional 16 locations may be sampled.
- TBD To be determined

Station ID ^c	Sample ID	Depth Interval (cm) ^{c,*}	Station Coordinates ^a		Metals ^b	Mercury	PCB Congeners	PCB Aroclors ^b	Dioxins/Furans ^b	PAH ^b	SVOC ^b	VOC ^b	Pesticides ^b	TOC	Grain size	Cesium-137 ^d	
			Northing	Easting													
PB084	PB084-1SS002-N	0 - 2	13829634.22	3200707.36	X	X		X	X	X	X		X	X	X		
PB084	PB084-1SC011-N	0 - 11			X	X	X	X	X	X	X	X	X	X	X		
PB084	PB084-1SC042-N	11 -41			X	X		X	X	X	X	X	X	X	X		
PB084	PB084-1SCXXX-N	+ 30 cm			X	X		X	X	X	X	X	X	X	X		
PB084	PB084-2SC004-N	0 - 4														X	
PB084	PB084-2SC032-N	29 - 32														X	
PB084	PB084-2SC064-N	61 - 64														X	
PB084	PB084-2SC096-N	93 - 96														X	
PB084	PB084-2SC128-N	125 - 128														X	
PB084	PB084-2SCXXX-N	+ 32 cm														X	
PB094	PB094-1SS002-N	0 - 2	13828774.24	3201009.01	X	X		X		X	X		X	X	X		
PB094	PB094-1SC011-N	0 - 11			X	X	X	X		X	X	X	X	X	X		
PB094	PB094-1SC042-N	11 -41			X	X		X		X	X	X	X	X	X		
PB094	PB094-1SCXXX-N	+ 30 cm			X	X		X		X	X	X	X	X	X		
Field Quality Assurance / Quality Control Samples																	
PB### ^e	PB###-#XX###-D	TBD	TBD	TBD	4 ^f	4	1	4	2	4	4	3	4	4	4	0	2
EB/ER ^g	EB#/ER#	NA	NA	NA										2			
Trip Blank	TB#	NA	NA	NA										4 ^h			

Notes:

- a Station Coordinates are State Plane coordinates based on North American Datum (NAD) 83 for Texas, South Central
- b See Table 3 for complete list of analytes/congeners included in analyses
- c Specific station and interval may be changed in the field to best represent site conditions
- d Radioisotope analysis for Cesium-137 will be performed on this interval; number of intervals per site will be dependent on sediment depth
- e Location to be determined in field based on site conditions. Samples to be named in accordance with Section 5.1.1
- f Represent the number of samples to be taken for each analyte class
- g Equipment blank / Equipment rinsate
- h One per shipment to the laboratory

TBD To be determined

- * Depth intervals will vary for each site; sediment will be collected from 0-11 cm, and then at 30-cm intervals to the depth of refusal (0 - 11 cm, 12 - 42 cm, 43 - 73 cm, 74 - 104 cm, 105 - 135 cm, 136 - 166 cm, etc.)

Revised Table 4
Parameters for Analysis and Target Practical Quantitation Limits for Sediment

	Units	Sediment Target PQL	Analytical Method	Sediment Quality Guidelines ^a				
				TEL	ERL			
SEDIMENT								
Conventional Parameters								
Gravel	%	0.1	PSEP	--	--			
Sand	%	0.1	PSEP	--	--			
Silt	%	0.1	PSEP	--	--			
Clay	%	0.1	PSEP	--	--			
Fines	%	0.1	PSEP	--	--			
Total solids	%	0.1	160.3M	--	--			
Total organic carbon	%	0.1	9060A	--	--			
Metals								
Mercury	mg/kg	0.05	7470A / 7471A	0.13	0.15			
Total metals (As)	mg/Kg	0.5	6020	7.24	8.2			
* Total metals (Cd)	mg/kg	0.05	6020	0.676	1.2			
* Total metals (Cr)	mg/kg	2	6020	52.3	81.0			
Total metals (Cu)	mg/kg	0.2	6020	18.7	34			
Total metals (Pb)	mg/kg	2.0	6020	30.2	46.7			
* Total metals (Ni)	mg/kg	0.2	6020	15.9	20.9			
* Total metals (Ag)	mg/kg	0.02	6020	0.73	1.0			
Total metals (Ba)	mg/kg	0.3	6010B / 6020	--	--			
* Total metals (Se)	mg/kg	1	7000 series GFAA	--	--			
Total metals (Zn)	mg/kg	0.6	6010B / 6020	124	150			
Radiochemistry								
Cesium ¹³⁷	pCi/g	0.1	901.1m	--	--			
Semivolatile Organics								
LPAH								
Naphthalene	µg/kg	6.7	8270C/ SIM	34.6	160			
Acenaphthalene	µg/kg	6.7	8270C/ SIM	5.9	44			
Acenaphthene	µg/kg	6.7	8270C/ SIM	6.7	16			
Fluorene	µg/kg	6.7	8270C/ SIM	21.2	19			
Phenanthrene	µg/kg	6.7	8270C/ SIM	86.7	240			
Anthracene	µg/kg	6.7	8270C/ SIM	46.9	85.3			
2-Methylnaphthalene	µg/kg	6.7	8270C/ SIM	20.2	70			
1-Methylnaphthalene	µg/kg	6.7	8270C/ SIM	--	--			
HPAH								
Fluoranthene	µg/kg	6.7	8270C/ SIM	112.8	600			
Pyrene	µg/kg	6.7	8270C/ SIM	152.7	665			
Benz(a)anthracene	µg/kg	6.7	8270C/ SIM	74.8	261			
Chrysene	µg/kg	6.7	8270C/ SIM	107.8	384			
Benzo(k)fluoranthene	µg/kg	6.7	8270C/ SIM	--	--			
Benzo(a)pyrene	µg/kg	6.7	8270C/ SIM	88.8	430			

	Units	Sediment Target PQL	Analytical Method	Sediment Quality Guidelines ^a	
				TEL	ERL
Benzo(e)pyrene	µg/kg	6.7	8270C/ SIM	--	--
Indeno(1,2,3-cd) pyrene	µg/kg	6.7	8270C/ SIM	--	--
Benzo(b)fluoranthene	µg/kg	6.7	8270C/ SIM	--	--
Dibenz(a,h)anthracene	µg/kg	6.7	8270C/ SIM	6.2	63.4
Benzo(g,h,i)perylene	µg/kg	6.7	8270C/ SIM	--	--
Perylene	ug/kg	6.7	8270C/ SIM	--	--
Alkyl-substituted PAH homologs					
C1-Naphthalenes	µg/kg	6.7	8270C/ SIM	--	--
C1-Chrysenes	µg/kg	6.7	8270C/ SIM	--	--
C1-Fluoranthenes/Pyrenes	µg/kg	6.7	8270C/ SIM	--	--
C1-Fluorenes	µg/kg	6.7	8270C/ SIM	--	--
C1-Phenanthrenes/Anthracenes	µg/kg	6.7	8270C/ SIM	--	--
C2-Chrysenes	µg/kg	6.7	8270C/ SIM	--	--
C2-Fluorenes	µg/kg	6.7	8270C/ SIM	--	--
C2-Naphthalenes	µg/kg	6.7	8270C/ SIM	--	--
C2-Phenanthrenes/Anthracenes	µg/kg	6.7	8270C/ SIM	--	--
C3-Chrysenes	µg/kg	6.7	8270C/ SIM	--	--
C3-Fluorenes	µg/kg	6.7	8270C/ SIM	--	--
C3-Naphthalenes	µg/kg	6.7	8270C/ SIM	--	--
C3-Phenanthrenes/Anthracenes	µg/kg	6.7	8270C/ SIM	--	--
C4-Chrysenes	µg/kg	6.7	8270C/ SIM	--	--
C4-Naphthalenes	µg/kg	6.7	8270C/ SIM	--	--
C4-Phenanthrenes/Anthracenes	µg/kg	6.7	8270C/ SIM	--	--
Misc. Semivolatile organics					
* 4-Bromophenyl-phenylether	ug/Kg	10	LL-8270	--	--
* 4-Chlorophenyl-phenylether	ug/Kg	10	LL-8270	--	--
Hexachlorobenzene	µg/kg	1	8081	--	--
Hexachlorobutadiene	µg/kg	1	8081	--	--
* Hexachloroethane	µg/kg	10	LL-8270	--	--
* 2,6-Dinitrotoluene	µg/kg	10	LL-8270	--	--
* Benzidine	NA	NA	NA	--	--
* Bis(2-Chloroisopropyl)ether	µg/kg	10	LL-8270	--	--
* Bis(2-Ethylhexyl)phthalate	µg/kg	200	LL-8270	--	182.6
* Dimethylphthalate	µg/kg	10	LL-8270	--	--
Volatile Organics*					
* 1,1,1,2-Tetrachloroethane	µg/kg	5.0	8260B	--	--
* 1,1,1-Trichloroethane (TCA)	µg/kg	5.0	8260B	--	--
* 1,1,2,2-Tetrachloroethane	µg/kg	5.0	8260B	--	--
* 1,1,2-Trichloroethane	µg/kg	5.0	8260B	--	--
* 1,1-Dichloroethane	µg/kg	5.0	8260B	--	--
* 1,1-Dichloroethene	µg/kg	5.0	8260B	--	--
* 1,1-Dichloropropene	µg/kg	5.0	8260B	--	--
* 1,2,3-Trichlorobenzene	µg/kg	20	8260B	--	--
* 1,2,3-Trichloropropane	µg/kg	5.0	8260B	--	--

	Units	Sediment Target PQL	Analytical Method	Sediment Quality Guidelines ^a	
				TEL	ERL
* 1,2,4-Trichlorobenzene	µg/kg	20	8260B	--	--
* 1,2,4-Trimethylbenzene	µg/kg	20	8260B	--	--
* 1,2-Dibromo-3-chloropropane	µg/kg	20	8260B	--	--
* 1,2-Dibromoethane (EDB)	µg/kg	20	8260B	--	--
* 1,2-Dichlorobenzene	µg/kg	5.0	8260B	--	--
* 1,2-Dichloroethane (EDC)	µg/kg	5.0	8260B	--	--
* 1,2-Dichloropropane	µg/kg	5.0	8260B	--	--
* 1,3,5-Trimethylbenzene	µg/kg	20	8260B	--	--
* 1,3-Dichlorobenzene	µg/kg	5.0	8260B	--	--
* 1,3-Dichloropropane	µg/kg	5.0	8260B	--	--
* 1,4-Dichlorobenzene	µg/kg	5.0	8260B	--	--
* 1,4-Dichlorobenzene-d4	µg/kg	5	8260B	--	--
* 2,2-Dichloropropane	µg/kg	5.0	8260B	--	--
* 2-Butanone (MEK)	µg/kg	20	8260B	--	--
* 2-Chlorotoluene	µg/kg	20	8260B	--	--
* 2-Hexanone	µg/kg	20	8260B	--	--
* 4-Bromofluorobenzene	µg/kg	5.0	8260B	--	--
* 4-Chlorotoluene	µg/kg	20	8260B	--	--
* 4-Isopropyltoluene	µg/kg	20	8260B	--	--
* 4-Methyl-2-pentanone (MIBK)	µg/kg	20	8260B	--	--
* Acetone	µg/kg	20	8260B	--	--
* Benzene	µg/kg	5.0	8260B	--	--
* Bromobenzene	µg/kg	5.0	8260B	--	--
* Bromochloromethane	µg/kg	5.0	8260B	--	--
* Bromodichloromethane	µg/kg	5.0	8260B	--	--
* Bromoform	µg/kg	5.0	8260B	--	--
* Bromomethane	µg/kg	5.0	8260B	--	--
* Carbon Disulfide	µg/kg	5.0	8260B	--	--
* Carbon Tetrachloride	µg/kg	5.0	8260B	--	--
* Chlorobenzene	µg/kg	5.0	8260B	--	--
* Chlorobenzene-d5	µg/kg	5	8260B	--	--
* Chloroethane	µg/kg	5.0	8260B	--	--
* Chloroform	µg/kg	5.0	8260B	--	--
* Chloromethane	µg/kg	5.0	8260B	--	--
* cis-1,2-Dichloroethene	µg/kg	5.0	8260B	--	--
* cis-1,3-Dichloropropene	µg/kg	5.0	8260B	--	--
* Dibromochloromethane	µg/kg	5.0	8260B	--	--
* Dibromofluoromethane	µg/kg	5.0	8260B	--	--
* Dibromomethane	µg/kg	5.0	8260B	--	--
* Dichlorodifluoromethane	µg/kg	5.0	8260B	--	--
* Ethylbenzene	µg/kg	5.0	8260B	--	--
* Fluorobenzene	µg/kg	5	8260B	--	--
* Hexachlorobutadiene	µg/kg	20	8260B	--	--
* Isopropylbenzene	µg/kg	20	8260B	--	--

	Units	Sediment Target PQL	Analytical Method	Sediment Quality Guidelines ^a	
				TEL	ERL
* m,p-Xylenes	µg/kg	5.0	8260B	--	--
* Methylene Chloride	µg/kg	10	8260B	--	--
* Naphthalene	µg/kg	20	8260B	--	--
* n-Butylbenzene	µg/kg	20	8260B	--	--
* n-Propylbenzene	µg/kg	20	8260B	--	--
* o-Xylene	µg/kg	5.0	8260B	--	--
* sec-Butylbenzene	µg/kg	20	8260B	--	--
* Styrene	µg/kg	5.0	8260B	--	--
* tert-Butylbenzene	µg/kg	20	8260B	--	--
* Tetrachloroethene (PCE)	µg/kg	5.0	8260B	--	--
* Toluene	µg/kg	5.0	8260B	--	--
* Toluene-d8	µg/kg	5.0	8260B	--	--
* trans-1,2-Dichloroethene	µg/kg	5.0	8260B	--	--
* trans-1,3-Dichloropropene	µg/kg	5.0	8260B	--	--
* Trichloroethene (TCE)	µg/kg	5.0	8260B	--	--
* Trichlorofluoromethane	µg/kg	5.0	8260B	--	--
* Vinyl Chloride	µg/kg	5.0	8260B	--	--
PCBs					
PCB Congeners (1-209)	pg/g	12.5	1668	--	--
PCB Aroclors					
Aroclor 1016	µg/kg	1.6	8082	--	--
Aroclor 1221	µg/kg	1.6	8082	--	--
Aroclor 1232	µg/kg	1.6	8082	--	--
Aroclor 1242	µg/kg	1.6	8082	--	--
Aroclor 1248	µg/kg	1.6	8082	--	--
Aroclor 1254	µg/kg	1.6	8082	--	--
Aroclor 1260	µg/kg	1.6	8082	--	--
Aroclor 1262	µg/kg	1.6	8082	--	--
Aroclor 1268	µg/kg	1.6	8082	--	--
Organochlorine Pesticides					
2,2'DDD	µg/kg	1.0	8081A	--	--
2,2'DDE	µg/kg	1.0	8081A	--	--
2,2'DDT	µg/kg	1.0	8081A	--	--
4,4'DDD	µg/kg	1.0	8081A	1.2	2
4,4'DDE	µg/kg	1.0	8081A	2.1	2.2
4,4'DDT	µg/kg	1.0	8081A	1.2	1.0
Aldrin	µg/kg	1.0	8081A	--	--
alpha-Chlordane	µg/kg	1.0	8081A	2.26	0.5
Dieldrin	µg/kg	1.0	8081A	0.72	0.02
* Delta-BHC	µg/kg	1.0	8081A	--	--
Endosulfan I	µg/kg	1.0	8081A	--	--
Endosulfan II	µg/kg	1.0	8081A	--	--
Endosulfan Sulfate	µg/kg	1.0	8081A	--	--
Endrin*	µg/kg	1.0	8081A	--	--

	Units	Sediment Target PQL	Analytical Method	Sediment Quality Guidelines ^a	
				TEL	ERL
Heptachlor	µg/kg	1.0	8081A	--	--
Heptachlor epoxide	µg/kg	1.0	8081A	--	--
Gamma-BHC (lindane)	µg/kg	1.0	8081A	0.32	--
* Gamma-Chlordane	µg/kg	1.0	8081A	2.26	0.5
* Methoxychlor	µg/kg	1.0	8081A	--	--
Dioxins and Furans					
2,3,7,8-Tetrachlorodibenzo-p-dioxin	pg/g	0.08	8290	--	--
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	pg/g	0.06	8290	--	--
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	pg/g	0.20	8290	--	--
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	pg/g	0.20	8290	--	--
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	pg/g	0.20	8290	--	--
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	pg/g	0.15	8290	--	--
Octachlorodibenzo-p-dioxin	pg/g	0.08	8290	--	--
2,3,7,8-Tetrachlorodibenzofuran	pg/g	0.08	8290	--	--
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	0.14	8290	--	--
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	0.14	8290	--	--
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	0.10	8290	--	--
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	0.10	8290	--	--
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	0.10	8290	--	--
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	0.15	8290	--	--
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	0.20	8290	--	--
1,2,3,4,7,8,9-Hepachlorodibenzofuran	pg/g	0.20	8290	--	--
Octachlorodibenzofuran	pg/g	0.25	8290	--	--
SURFACE WATER					
Conventional Parameters					
Total suspended solids	mg/L	10	160.2	--	--

Notes:

* Not previously identified as target analyte

All chemicals results reported on dry weight basis

a NOAA SQuiRTs table (Buchman 1999)

b The full list of Volatile Organics will be reported

TEL - Threshold effects limit

ERL - Effects range low

'—' Not available

Revised Table 5
Laboratory Quality Control Sample Summary

Analysis Type	Initial Calibration	Ongoing Calibration	Standard Reference Material or LCS/LCSD	Replicates	Matrix Spikes	Matrix Spike Duplicates	Method Blanks	Surrogate Spikes
Grain size	Each batch ^a	NA	NA	1 per 20 samples	NA	NA	NA	NA
TOC	Daily or each batch	1 per 10 samples	1 per 20 samples	1 per 20 samples	1 per 20 samples	NA	Each batch	NA
TSS	Daily ^d	NA	NA	1 per 20 samples	NA	NA	NA	NA
Metals, Total	Daily or each batch	1 per 10 samples	1 per 20 samples	1 per 20 samples	1 per 20 samples	NA	Each batch	NA
Mercury	Daily or each batch	1 per 10 samples	1 per 20 samples	1 per 20 samples	1 per 20 samples	NA	Each batch	NA
Radiochemistry	Yearly	Twice weekly	1 per 20 samples ^{e,f}	1 per 20 samples	1 per 20 samples ^{e,f}	1 per 20 samples ^{e,f}	1 per 20 samples ^{e,f}	NA
Polychlorinated biphenyls	As needed ^c	1 per 10 samples	1 per 20 samples	NA	1 per 20 samples	1 per 20 samples	Each batch	Every sample
Organochlorine pesticides	As needed ^c	1 per 10 samples	1 per 20 samples	NA	1 per 20 samples	1 per 20 samples	Each batch	Every sample
SVOC	As needed ^c	1 per 10 samples	1 per 20 samples	NA	1 per 20 samples	1 per 20 samples	Each batch	Every sample
VOC	As needed ^c	Every 12 hours	1 per 20 samples	NA	1 per 20 samples	1 per 20 samples	Each batch	Every sample
Dioxins and furans	As needed ^c	1 per 10 samples	1 per 20 samples	NA	1 per 20 samples	1 per 20 samples	Each batch	Every sample

Notes:

a Calibration and certification of drying ovens and weighing scales are conducted bi-annually.

b Initial calibration verification and calibration blank must be analyzed at the beginning of each batch.

c Initial calibrations are considered valid until the ongoing continuing calibration no longer meets method specifications. At that point, a new initial calibration is performed.

d Scale should be calibrated with class 5 weights daily, weights must bracket the weight of sample and weighing vessel.

e Standard reference material is not applicable for this analysis. There is also no surrogate spike to be used for the analysis

f If sufficient material is available

NA Not applicable

LCS Laboratory control sample / laboratory control sample duplicate

Revised Table 6
Laboratory Measurement Objectives for Sediment Samples

Parameter	Precision	Accuracy	Completeness
Grain size	+/- 20% RPD	NA	95%
Total suspended solids	+/- 20% RPD	NA	95%
Metals, Total	+/- 20% RPD	65-130% R	95%
Total organic carbon	+/- 20% RPD	65-130% R	95%
Radiochemistry	+/- 25% RPD	65-135% R	95%
Organochlorine pesticides	+/- 50% RPD	50-140% R	95%
Polychlorinated biphenyls	+/- 50% RPD	50-140% R	95%
SVOC	+/- 50% RPD	50-140% R	95%
VOC	+/- 50% RPD	50-140% R	95%
Dioxins/Furans	+/- 50% RPD	50-140% R	95%

Notes:

RPD Relative percent difference
R Recovery

Revised Table 7
Sample Containers, Preservatives, and Holding Times

Parameter	Container Size and Type	Holding Time	Preservative
Dioxins/Furans	8-oz Glass	14 days until extraction	Cool/4° C
PCBs congeners	8-oz Glass	14 days until extraction	Cool/4° C
Metals, Total	4-oz Glass	14 days until extraction	Cool/4° C
Mercury, Total			
PCB Aroclors	16-oz Glass	14 days until extraction	Cool/4° C
Organochlorine pesticides			
SVOC			
VOC	2-oz Glass	14 days until extraction	Cool/4° C
Radiochemistry	4-oz Glass	NA	NA
Archive	16-oz Glass	30 days	Cool/4° C
Total Organic Carbon	4-oz Glass	28 days	Cool/4° C
Grain Size	16-oz Plastic	6 months	NA
Total suspended solids	Glass	7 days	Cool/4° C
Trip blanks	2 x 40 ml VOA vials	14 days until extraction	HCl ph<2 Cool/4° C
Equipment rinsate / field blank	2 x 40 ml VOA vials	14 days until extraction	HCl ph<2 Cool/4° C

Notes:

PCBs polychlorinated biphenyls
 VOC volatile organic compounds
 SVOC semivolatile organic compounds
 NA not applicable

Revised Table 8
Summary of Station Location Coordinates

Station ID	Station Coordinates ^a	
	Northing	Easting
Vertical Profiling Task		
PB003	13836425.37	3202339.46
PB009	13836190.69	3201850.92
PB016	13836120.76	3201194.62
PB018	13835837.70	3201070.29
PB022	13835498.23	3201097.95
PB030	13834707.34	3201335.33
PB036	13834114.31	3201378.46
PB042	13833551.36	3201354.53
PB048	13832959.40	3201502.80
PB057	13832096.55	3201519.36
EF001	13831226.21	3201612.72
PB063	13831338.02	3201542.97
PB067	13831216.18	3201354.56
PB077	13830368.06	3200780.25
Source characterization Task		
EF008	13830923.34	3202129.31
PB101	13828192.83	3201310.38
PB119	13826344.50	3201533.38
PB123	13826005.27	3201452.98
Hydrodynamic Data Task*		
PB012	13836226.37	3201552.45
PB026	13835041.74	3201321.91
PB045	13833154.73	3201698.94
EF005	13830529.34	3200876.80
PB075	13831158.08	3201756.55

Notes:

- a Station Coordinates are State Plane coordinates based on North American Datum (NAD) 83 for Texas, South
- * Locations are approximate and may be adjusted in the field



